

TECHNICAL REVIEW DOCUMENT
For
RENEWAL / MODIFICATION TO OPERATION PERMIT 95OPBO068

Colorado Mental Health Institute at Pueblo
Pueblo County
Source ID 1010006

Prepared November 2008
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I. Purpose:

This document establishes the basis for decisions made regarding the applicable requirements, emission factors, monitoring plan and compliance status of emission units covered by the renewal and modification of the Operating Permit for the Colorado Mental Health Institute at Pueblo. The current Operating Permit for this facility was issued on October 1, 2002. The expiration date for the permit was October 1, 2007. However, since a timely and complete renewal application was submitted, under Colorado Regulation No. 3, Part C, Section IV.C all of the terms and conditions of the existing permit shall not expire until the renewal operating permit is issued and any previously extended permit shield continues in full force and operation.

After the submittal of the renewal application, the source had submitted an application on October 16, 2008 to revise their Title V permit to incorporate the provisions of construction permits issued to increase the fuel consumption limits for the existing coal fired boilers and to construct and operate two new natural gas fired boilers, which would replace the existing natural gas-fired back-up boilers included in the current Title V permit. The construction permits for this project were issued October 19, 2006. The change in potential emissions associated with the project is shown in the table below:

	Emissions (tons/yr)					
	PM	PM ₁₀	SO ₂	NO _x	CO	VOC
Increased emissions from coal-fired units	5.4	1.04	67.9	5.8	20	0.1
Emissions from the new boilers ¹	4	4	0.3	51.5	43.4	2.8
Removal of Grandfathered Boilers ²	-3.92	-3.92	-0.3	-51.6	-43.3	-2.84
Modification Emissions	5.48	1.12	67.9	5.7	20.1	0.06

¹The initial construction permit issued for the proposed new boilers (06PB0406, initial approval issued 10/19/06), included the option to burn distillate fuel oil. However, in 2008, the source requested that the permit be revised to remove the provisions for burning distillate fuel oil. The revised construction permit was issued on [November 21, 2008] to remove the capability to burn distillate fuel.

²PTE is based on AP-42 emission factors, design rate and 8,760 hrs/yr of operation for the grandfathered natural gas fired boilers.

Since this modification results in a significant increase in the rate of emissions, the modification must be processed as a significant modification as required by Colorado Regulation No. 3, Part C, Section I.A.7.a. A significant modification is processed under the same procedures as a renewal, i.e. it must go through a 30-day public comment period and EPA 45-day review period. Therefore, since the renewal application has been submitted the Division is incorporating the modification with the renewal.

This document is designed for reference during review of the proposed permit by EPA and for future reference by the Division to aid in any additional permit modifications at this facility. The conclusions made in this report are based on the source's request for a modification submitted on October 16, 2008, the renewal application submitted on July 11, 2006, additional information submitted on November 14 (via e-mail), 19 and 26, 2008, comments on the draft permit and technical review document received January 21, 2009 via e-mail, previous inspection reports and various e-mail correspondence, as well as telephone conversations with the applicant. Please note that copies of the Technical Review Document for the original permit and any Technical Review Documents associated with subsequent modifications of the original Operating Permit may be found in the Division files as well as on the Division website at <http://www.cdphe.state.co.us/ap/Titlev.html>.

This narrative is intended only as an adjunct for the reviewer and has no legal standing.

Any revisions made to the underlying construction permits associated with this facility made in conjunction with the processing of this operating permit application have been reviewed in accordance with the requirements of Regulation No. 3, Part B, Construction Permits, and have been found to meet all applicable substantive and procedural requirements. This operating permit incorporates and shall be considered to be a combined construction/operating permit for any such revision, and the permittee shall be allowed to operate under the revised conditions upon issuance of this operating permit without applying for a revision to this permit or for an additional or revised construction permit.

II. Description of Source

The Colorado Mental Health Institute at Pueblo is a psychiatric hospital. The significant emission units for this facility consist of two coal-fired boilers and two natural gas-fired boilers.

The facility is located at 1600 West 24th Street in Pueblo. The area in which the plant operates is designated as attainment for all criteria pollutants.

There are no affected states within 50 miles of the plant. The Great Sand Dunes National Park, a Federal Class I designated area, is within 100 km of this facility.

The summary of emissions that that was presented in the Technical Review Document for the original permit issuance has been modified to update actual emissions and to update the potential to emit (PTE) based on the modifications made at the facility to increase the fuel consumption rate for the coal-fired boilers, to construct and operate

the new natural gas fired boilers and to remove the existing gas-fired boilers that are addressed in the current Title V permit. Emissions (in tons per year) at the facility are as follows:

	Potential to Emit (tons/yr)								
	PM	PM ₁₀	SO ₂	NO _x	CO	VOC	H ₂ SO ₄	Pb	HAPS
Coal-Fired Boilers	13.2	2.64	175	88	50	0.5	2.14	0.06	4.03
Natural Gas-Fired Boilers	4.0	4.0	0.3	51.5	48.3	2.8	N/A	N/A	0.97
Total	17.2	6.64	175.3	139.5	98.3	3.3	2.14	0.06	5.0

Potential to emit for the above equipment is based on permitted emissions. Lead (Pb) emissions are based on the lead content indicated in the coal analysis and the permitted coal consumption rate. Sulfuric acid (H₂SO₄) emissions are based on the sulfur content of the coal (0.5 weight percent as indicated on the APEN submitted on 4/24/06), the permitted coal consumption rate and assumes that 0.7% of the sulfur in the fuel is converted to H₂SO₄ (based on AP-42, Section 1.1, dated 9.98, Table 1.1-3, footnote b).

The breakdown of HAP emissions by emission unit and individual HAP is provided on page 17 of this document. HAP emissions for the natural gas fired boilers are based on AP-42 emission factors (Section 1.4, dated 3/98, Tables 1.4-3 and 1.4-4) and the permitted natural gas consumption rate. Metal and acid gas (HF and HCl) emissions from the coal-fired boilers are based on the coal analysis and the permitted coal consumption rate. Organic HAP emissions are based on AP-42 emission factors (Section 1.1, dated 9/98, Table 1.1-14) and the permitted coal consumption rate.

	Actual Emissions (tons/yr)						
	PM	PM ₁₀	SO ₂	NO _x	CO	VOC	HAPS
Coal-Fired Boilers	7.39	1.48	91.71	49.27	27.99	0.28	none reported
Natural Gas-Fired Boilers	4.0	4.0	0.3	51.5	48.3	2.8	Less than de minimis
Total	11.39	5.48	92.01	100.77	76.29	3.08	N/A

Actual emissions from the coal-fired units are based on the APEN submitted on April 24, 2006 (2005 data). Since the natural gas fired units just commenced operation, potential emissions are shown in the above table.

MACT Requirements

This facility is a minor source for HAP emissions. Although the facility is not a major source for HAPS, the EPA has been promulgating rules for area sources (sources that

are not major). Those requirements that could potentially apply to this facility are discussed below:

Paint Stripping and Miscellaneous Surface Coating at Area Sources (40 CFR Part 63 Subpart HHHHHH)

The final rules for paint stripping and miscellaneous surface coating were published in the Federal Register on January 9, 2008 and apply to area sources that perform paint stripping operations using methylene chloride, spray application of coatings to motor vehicles and mobile equipment and spray application of coatings that contain the target HAPS (chromium, lead, manganese, nickel or cadmium). As indicated in 40 CFR Part 63 § 63.11170(a)(2) and (3), spray applications (to motor vehicles and using coatings that contain the target HAPS) that meet the definition of facility maintenance are not subject to the requirements in this rule. The Division considers that any spray coatings of motor vehicles and mobile equipment and spray application of coatings that contain the target HAP at this facility would meet the definition of facility maintenance. The source indicated that none of the paint stripping chemicals used at the facility contain methylene chloride; therefore, the provisions in 40 CFR Part 63 Subpart HHHHHH do not apply.

Reciprocating Internal Combustion Engines (40 CFR Part 63 Subpart ZZZZ)

The reciprocating internal combustion engine (RICE) MACT was signed as final on February 26, 2004 and was published in the Federal Register on June 15, 2004. Under this rulemaking only RICE that were > 500 hp and located at major sources of HAPS were subject to the requirements.

However, revisions were made to the RICE MACT to address engines \leq 500 hp at major sources and all size engines at area (minor) sources. These revisions were published in the Federal Register on January 18, 2008. Under these revisions, existing compression ignition (CI) engines, 2-stroke lean burn (2SLB) and 4-stroke lean burn (4SLB) engines were not subject to any requirements in either Subparts A or ZZZZ (40 CFR Part 63 Subpart ZZZZ § 63.6590(b)(3)). For purposes of the MACT, engines located at area sources are existing if they commenced construction or reconstruction before June 12, 2006. There are 10 engines, used to drive emergency generators, identified in the insignificant activity list that are considered existing and are therefore not subject to the MACT. The source provided additional information on these emergency generators and also indicated that a new emergency generator was expected to commence operation in January 2009. This emergency generator was manufactured after June 12, 2006; therefore, this emergency generator is subject to the RICE MACT requirements. The appropriate requirements for this emergency generator will be included in the draft renewal permit.

Gasoline Dispensing Facilities (40 CFR Part 63 Subpart CCCCCC)

The final rules for gasoline dispensing facilities (GDF) were published in the Federal Register on January 10, 2008 and apply to gasoline dispensing facilities (GDF) located at area sources. A 2,000 gallon gasoline storage tank is listed in the insignificant activity list of the current permit. Since this tank is used to fuel plant vehicles, the tank is considered a GDF and is subject to the GDF MACT requirements. Therefore, the gasoline storage tank has been removed from the insignificant activity list and included in Section II of the permit. It should be noted that the source indicated that the gasoline storage tank was actually a 4,000 gallon tank and will be reflected as such in the permit.

Compliance Assurance Monitoring (CAM) Requirements

The coal-fired boilers are equipped with a control device to meet emission limitations, have uncontrolled emissions above the major source level and are therefore subject to the CAM requirements. The CAM plan and requirements were included in the Title V renewal permit issued on October 1, 2002. There is no other equipment at the facility that is subject to the CAM requirements.

III. Discussion of Modifications Made

Source Requested Modifications

The source submitted a renewal application on July 11, 2006. In the renewal application, the source did not request any modifications to the permit.

The source submitted an application to modify their permit on October 16, 2008 to incorporate the requirements from two recently issued construction permits into their Title V permit.

The source's requested modifications, as identified in the October 16, 2008 request, were addressed as follows:

Section II.1 - "New" Natural-Gas Fired Boilers – Section II.1

S004 and S006: Two (2) Cleaver Brooks, Model No. CB-DL-60-300, Natural Gas-Fired Steam Generating Boilers, Each Rated at 60 mmBtu/hr, Serial Nos. D-4988 (Boiler #3) and D-4989 (Boiler #4).

1. Applicable Requirements - The source submitted an application in April 2006 to construct and operate two new natural gas / distillate oil fired boilers. These boilers were intended to replace the existing natural gas fired boilers that are included in the current Title V permit. An initial approval construction permit (06PB0406) was issued on October 19, 2006 for these two new boilers. Boiler # 4 commenced operation in October 2007 and Boiler #3 commenced operation in February 2008. In July 2008, the source submitted an application to revise the permit issued for the new boilers to remove the provisions for burning distillate fuel and a revised construction permit was issued on November 21, 2008. The existing boilers were replaced and removed from service in June (Boiler #4) and October (Boiler #3) 2007.

The source submitted self-certifications on November 5, 2007 (for Boiler #4) and July 18, 2008 (for both boilers). The self-certification submitted on July 18, 2008 was based on the fact that the diesel fuel capability had not been installed on the boilers and the source was in the process of submitting an application to revise their construction permit to remove the diesel fuel capability. Under the provisions of Colorado Regulation No. 3, Part C, Section V.A.3, the Division will not issue a final approval construction permit and is allowing the initial approval construction permit to continue in full force and effect. The appropriate applicable requirements from the modified initial approval construction permit issued on November 21, 2008 has been incorporated into the renewal permit as follows:

- Except as provided for below, opacity of emissions shall not exceed 20% opacity (condition 2, Reg 1, Section II.A.1)
- Opacity of emissions shall not exceed 30% under certain specific conditions (condition 3, Reg 1, Section II.A.4)
- Particulate matter emissions **from each boiler** shall not exceed $0.5(FI)^{-0.26}$ lbs/mmBtu, where FI = fuel input in mmBtu/hr (condition 4 and Reg 1, Section III.A.1.b).

- **Both boilers together** shall be subject to the following fuel use limits (condition 5):

Natural gas 87.5 mmSCF/mo and 1,030.6 mmSCF/yr

The monthly limitations apply for the first twelve months of operation. The first boiler commenced operation in October of 2007; therefore, the monthly limitations no longer apply.

- **Both boilers together** shall be subject to the following emission limits (condition 6):

○ PM	0.33 tons/mo	and	4.0 tons/yr
○ PM ₁₀	0.33 tons/mo	and	4.0 tons/yr
○ NO _x	4.4 tons/mo	and	51.5 tons/yr
○ CO	3.7 tons/mo	and	43.3 tons/yr
○ VOC	0.24 tons/mo	and	3.15 tons/yr

The monthly limitations apply for the first twelve months of operation. The first boiler commenced operation in October of 2007; therefore, the monthly limitations no longer apply.

- **Each boiler** is subject to Regulation No. 6 – Standards of Performance for New Stationary Sources, Part B – Specific Facilities and Sources, Non-Federal NSPS, II – Standards of Performance for New Fuel-Burning Equipment (condition 7). These are **state-only requirements**.

- Opacity of emissions shall not exceed 20%
- Particulate matter emissions shall not exceed $0.5(FI)^{-0.26}$ lbs/mmBtu, where FI = fuel input in mmBtu/hr
- **Each boiler** is subject to the requirements in 40 CFR Part 60 Subpart Dc Standards of performance for Small Industrial-Commercial-Institutional Steam Generating Units, including, but not limited to the following (condition 8):
 - Record quantity of fuel burned monthly in accordance with 40 CFR Part 60 Subpart Dc § 60.48c(g).
 - Retain records for two years in accordance with 40 CFR Part 60 Subpart Dc § 60.48c(i).
- In addition, the boilers are also subject to the NSPS General Provisions in 40 CFR Part 60 Subpart A, including, but not limited to the following (condition 8):
 - Good practices (§ 60.11(d))
 - Circumvention (§ 60.12)
 - Record startup, shutdowns and malfunctions (§ 60.7(b))
- An application to modify the Title V permit shall be submitted within one year of commencing operation (condition 9).

An application was submitted on October 16, 2008 to revise the Title V permit; therefore, this requirement will not be included in the construction permit.

- Prior to issuance of a final approval permit, the applicant shall submit to the Division for approval a proposed recordkeeping format for demonstrating compliance on an ongoing basis (condition 10)

The operating permit will contain the necessary monitoring required to assess compliance with the permit conditions.

- Within 180 days after commencement of operation, compliance with the conditions contained on this permit shall be demonstrated to the Division (condition 13).

The source submitted a self-certification on July 18, 2008; therefore, this requirement will not be included in the permit.

- APEN reporting requirements (condition 12).

The APEN reporting requirements will not be identified in the permit as a specific condition but are included in Section IV (General Conditions) of the permit, condition 22.e.

Streamlining of Applicable Requirements

Opacity

The boilers are subject to the Regulation No. 1 opacity standards and the Regulation No. 6, Part B opacity requirement. The Reg 1 20% opacity requirement applies at all times, except for certain specific operating conditions under which the Reg 1 30% opacity requirement applies. Reg 6, Part B, Section I.A, adopts, by reference, the 40 CFR Part 60 Subpart A general provisions. 40 CFR Part 60 Subpart A § 60.11(c) specifies that the opacity requirements are not applicable during periods of startup, shutdown and malfunction. The Reg 1 20%/30% opacity requirements are more stringent than the Reg 6 Part B opacity requirements during periods of startup, shutdown and malfunction (see opacity grid on page 18). While the Reg 6, Part B 20% opacity requirement is more stringent during fire building, cleaning of fire boxes, soot blowing, process modifications and adjustment or occasional cleaning of control equipment. Therefore, since no one opacity requirement is more stringent than the other at all times, all three opacity requirements are included in the operating permit. See the grid on page 18 for a clarified view on the opacity requirements and their relative stringency.

It should be noted that since the boilers are only permitted to use natural gas as fuel, the Division will presume, in the absence of credible evidence to the contrary, that these units are in compliance with all of the opacity requirements.

PM

The boilers are subject to the Reg 1 particulate matter requirements and the state-only, Reg 6, Part B particulate matter requirements. The particulate matter requirements in both Reg 1 and Reg 6, Part B are the same standard. The Reg 1 particulate matter requirements apply at all times. Reg 6, Part B, Section I.A, adopts, by reference, the 40 CFR Part 60 Subpart A general provisions. Although not specifically stated in the general provisions, the Division has concluded after reviewing EPA determinations that the NSPS standards are not applicable during startup, shutdown and malfunction, although any excess emissions during these periods must be reported in the excess emission reports. Specifically, EPA has indicated (4/18/75, determination control no. A007) that when 40 CFR Part 60 Subpart A § 60.11(d) was developed "...it was recognized that sources which ordinarily comply with the standards may during periods of startup, shutdown and malfunction unavoidably release pollutants in excess of the standards." In addition, EPA has also indicated (5/15/74, determination control number D034) that "[s]ection 60.11(a) makes it clear that the data obtained from these reports are not used in determining violations of the emission standards. Our purpose in requiring the submittal of excess emissions is to determine whether affected facilities are being operated and maintained 'in a manner consistent with good air pollution control practices for minimizing emissions' as required by 60.11(d)." Therefore, the Division considers that the Reg 6, Part B PM requirements do not apply during periods of startup, shutdown and malfunction. Therefore, the Regulation No. 1 PM requirement

is more stringent than the Regulation No. 6, Part B requirement and the Regulation No. 6, Part B requirements will be streamlined out of the permit.

Recordkeeping

NSPS Dc requires that records be kept for a period of 2 years, while Reg 3, Part C, Section V.C.6 requires that records be retained for five (5) years. Therefore, the NSPS recordkeeping requirement will be streamlined out of the permit.

2. Emission Factors – Approval of emission factors is necessary to monitor compliance with the permit limitations. The following emission factors will be included in the operating permit.

Pollutant	Emission Factors (lbs/mmSCF)	Emission Factor Source
PM	7.6	AP-42, Section 1.3, dated 3/98, Tables 1.4-1 & 1.4-2, uncontrolled boilers < 100 mmBtu/hr
PM ₁₀	7.6	
SO ₂	0.6	
NO _x	100	
CO	84	
VOC	5.5	

Note that since permitted SO₂ emissions are below the APEN de minimis level, SO₂ emissions were not included in the construction permit and will not be included in the Title V renewal permit.

3. Monitoring Plan - Compliance with these requirements include monitoring and recording fuel consumption and calculating emissions from each boiler monthly. Compliance with the opacity and particulate matter requirements shall be presumed, in the absence of credible evidence to the contrary, since only natural gas is permitted to be used as fuel in the boilers.

Section II.2 - Coal-Fired Boilers

The source submitted an application in April 2006 to revise the permit for the coal-fired boilers to increase the permitted fuel consumption and emission limitations. The revised construction permit (86PB240-1) was issued on October 19, 2006. The existing baghouse for the coal-fired boilers was replaced in May 2008. In July 2008, the source submitted an application to revise their construction permit to reflect the new boiler baghouse and a revised construction permit was issued on November 21, 2008.

The Title V permit was revised to reflect the higher fuel consumption and emission limitations and to reflect the new baghouse.

In addition, both Section II, Condition 2.4.1 (CAM requirements) and the CAM plan were revised to reflect changes to the indicator range for the pressure differential (high level was revised from 5.25 to 6.25 inches of mercury) and the inlet gas temperature (the

range was revised from 275 to 375 to 200 to 400 °F). In addition the CAM plan was revised to remove the language indicating that a specific number of staff members that would be trained and certified to perform visible emission observations.

Other Modifications

In addition to the source requested modifications, the Division has included changes to make the permit more consistent with recently issued permits, include comments made by EPA on other Operating Permits, as well as correct errors or omissions identified during inspections and/or discrepancies identified during review of this renewal.

The Division has made the following revisions, based on recent internal permit processing decisions and EPA comments to the Colorado Mental Health Institute at Pueblo Renewal Operating Permit. These changes are as follows:

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- Monitoring and compliance periods and report and certification due dates are shown as examples. The appropriate monitoring and compliance periods and report and certification due dates will be filled in after permit issuance and will be based on permit issuance date. Note that the source may request to keep the same monitoring and compliance periods and report and certification due dates as were provided in the original permit. However, it should be noted that with this option, depending on the permit issuance date, the first monitoring period and compliance period may be short (i.e. less than 6 months and less than 1 year).
- Added language specifying that the semi-annual reports and compliance certifications are due in the Division's office and that postmarks cannot be used for purposes of determining the timely receipt of such reports/certifications.

Section I – General Activities and Summary

- Revised the language in Condition 1.4 to include Section IV, Condition 3.d and to note that only part of Condition 3.g is state-only enforceable (last paragraph). Note that Section IV, Condition 3.d (affirmative defense provisions for excess emissions during malfunctions) is state-only until approved by EPA in the SIP.
- Made minor revisions to the language in Condition 3.1 to be more consistent with other permits.
- Added a column to the Table in Condition 6.1 for the startup date of the equipment.

Section II.2 – Coal-fired boilers

- Removed the baghouse model number identified in Condition 2.2.1. The table in Section I, Condition 6.1 lists the model and serial number of the baghouse and it is not necessary to repeat that information in this permit condition.

- Revised Condition 2.4.1 to include the baghouse inlet gas temperature as an excursion. Although this was previously indicated in the CAM plan (Appendix G) as an indicator and the indicator range was noted, it was not identified as an excursion in Condition 2.4.1.
- Condition 2.4.1 was also revised to indicate that excursions were also instances when CAM was not conducted as required. To that end, this condition was revised to indicate that failure to conduct a visible emission observation in any two week period and failure to record the baghouse inlet gas temperature on any day the coal-fired boilers are operating shall be noted as excursions.
- The Division made the following changes to the monitoring requirements in Condition 2.7:
 - Added language specifying that in lieu of conducting a Method 22 visible emission observation, the permittee could conduct a Method 9 observation.
 - Removed the requirement to conduct a visible emission observation (Method 22, followed by a Method 9 if necessary) when any specific activities that are subject to the 30% opacity occur during a two-week period. The Division considers that conducting a visible emission observation every two weeks is sufficient.
 - Removed the statement regarding the continuous opacity monitor alarm. According to previous inspection reports the continuous opacity monitor has not been functional for years. Note that as indicated in the technical review document for the original Title V permit (issued October 1, 1997) there was no regulatory requirement to have a continuous opacity monitor, nor had the Division ever certified the monitor.

Section II.3 – “New” Section for gasoline dispensing

Previously, a 2,000 gallon gasoline storage tank was included in the list of insignificant activities in accordance with Colorado Regulation No. 3, Part C, Section II.C.E.3.ccc (fuel storage and dispensing equipment in ozone attainment areas with throughput less than 400 gal/day, averaged over 30 days). However, under the “catch-all” provisions in Regulation No. 3, Part C, Section II.E, sources that are subject to any federal or state applicable requirement, such as National Emission Standards for Hazardous Air Pollutants (NESHAPs), may not be considered insignificant activities. EPA promulgated National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Dispensing Facilities in 40 CFR Part 63 Subpart CCCCCC which were published in the federal register on January 10, 2008 and apply to gasoline dispensing facilities (GDF) located at area sources (minor sources for HAPS). This facility is a minor source for HAP emissions. Therefore, the provisions for GDFs at area sources apply to the gasoline tank at this facility.

Since the tank was previously considered insignificant due to throughput less than 400 gallons per day, the Division considers that the monthly throughput for this unit would be

less than 10,000 gallons and therefore, the tank would only be subject to work practice standards. In addition, since this is an existing tank, the permittee must comply with the requirements in 40 CFR Part 63 Subpart CCCCCC no later than January 10, 2011. Since the Division is renewing the permit at this time, we are including the appropriate requirements for the GDF in the permit. Note that as mentioned previously, the source has indicated that the gasoline storage tank is a 4,000 gallon tank, therefore, it will be reflected as such in the permit.

Note that since the provisions in 40 CFR Part 63 Subpart CCCCCC have not been adopted into Colorado Regulation No. 8, Part E, these requirements are not state-enforceable and the “catch-all” provisions for APEN reporting and minor source permitting do not apply. Therefore, this tank is still exempt from the APEN reporting and minor source permitting requirements. In the event that the Division adopts these requirements this GDF will be subject to the APEN reporting and minor source permitting requirements and the requirements in 40 CFR Part 63 Subpart CCCCCC will be state-enforceable.

Section II.4 – “New” Section for building 140 emergency generator

During processing of the renewal application, the source indicated that a new emergency generator would be installed to support Building 140 and that it was expected to commence operation in January 2009. In general, if this generator would operate less than 100 hrs/yr, it would be considered an insignificant activity and included in the insignificant activity list in Appendix A of the permit. However, since the proposed new emergency generator will be subject to the New Source Performance Standards for Compression Ignition Internal Combustion Engines (40 CFR Part 60 Subpart IIII) and the National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (40 CFR part 63 Subpart ZZZZ), under the “catch-all” language in Colorado Regulation No. 3, Part A, Section II.D.1, Part B, Section II.D and Part C, Section II.E, the proposed new engine is not exempt from APEN reporting requirements, minor source permitting (construction permit) requirements and cannot be considered an insignificant activity. Therefore, the source submitted information regarding the proposed new engine on November 19, 2008 via e-mail and an APEN was submitted on November 26, 2008. The Division has included the requirements for the new engine in the Operating Permit as a combined construction/operating permit.

Applicable Requirements

The proposed new engine is a Cummins, Model No. QST30-G5 NR2, rated at 1102 hp (full standby) and 52.7 gal/hr (full standby), Serial No. J070120129. The generator is a Cummins, Model No. 750DQFAA-7024, rated at 750 kw. The engine is a 12 cylinder engine with a displacement of 30.5 liters (2.54 liters/cylinder).

The appropriate applicable requirements for this engine are as follows:

- Except as provided for below, visible emissions shall not exceed 20% opacity (Reg 1, Section II.A.1)
- Visible emissions shall not exceed 30% opacity, for a period or periods aggregating more than six (6) minutes in any sixty (60) minute period, during fire building, cleaning of fire boxes, soot blowing, start-up, process modifications, or adjustment or occasional cleaning of control equipment, when burning coal (Reg 1, Section II.A.4)

Based on engineering judgment, the Division believes that the operational activities of fire building, cleaning of fire boxes and soot blowing do not apply to diesel engines. In addition, since this engine is not equipped with control equipment the operational activities of adjustment or occasional cleaning of control equipment also do not apply to this engine. Finally, based on engineering judgment, it is unlikely that process modifications will occur with the emergency generator. Therefore, for this unit the 30% opacity provision only applies during startup.

- SO₂ emission shall not exceed 0.8 lbs/mmBtu (Reg 1, Section VI.B.4.b.(i)).
- 40 CFR Part 60 Subpart IIII, “Standards of Performance for Stationary Compression Ignition Internal Combustion Engines”, as adopted by reference in Colorado Regulation No. 6, Part A, as follows:
 - Emission limitations per § 60.4205(b)
 - Emission limitations shall be met for the time period specified in § 60.4206
 - Fuel requirements per § 60.4207
 - Monitoring requirements per § 60.4209
 - Compliance requirements per § 60.4211
 - Notification, reporting and recordkeeping requirements in § 60.4214
- 40 CFR Part 60 Subpart A, “General Provisions”, as adopted by reference in Colorado Regulation No. 6, Part A, as follows:
 - Circumvention (§ 60.12)

40 CFR Part 60 Subpart IIII § 60.4218 identifies the general provisions that apply. According to the table, the provisions in § 60.7 (notification and recordkeeping) apply as specified in § 60.4214(a) and this section does not apply to this engine, therefore, the provisions in § 60.7 do not apply. The table also indicates that § 60.8 (performance testing) and § 60.13 (monitoring requirements) only apply to engines with a displacement greater than or equal to 30 liters per cylinder and therefore do not apply to this engine. In addition, the table indicates that the provisions in § 60.11 do not apply as the requirements are specified in Subpart IIII.

- 40 CFR Part 63 Subpart ZZZZ requirements.

This facility is an area source and according to 40 CFR Part 60 Subpart ZZZZ § 60.6590(c), a new or reconstructed RICE at an area source must meet these requirements by meeting the requirements in 40 CFR Part 60 Subpart IIII and is subject to no further requirements under Subpart ZZZZ.

Note that the provisions in 40 CFR Part 63 Subpart ZZZZ for area sources have not been adopted into Colorado Regulation No. 8, Part E as of this date. Therefore, the provisions in 40 CFR Part 63 Subpart ZZZZ are not state-enforceable as of the issuance date of this renewal permit.

- APEN reporting requirements (Reg 3, Part A, Section II)
- Construction permit requirements in Reg 3, Part B

Emission Factors/Monitoring Plan

The emission factors used to estimate emissions from this unit are the NSPS emission limitations for PM, NO_x and CO. PM₁₀ emissions are presumed to equal PM. Although the NSPS emission limit for NO_x is actually for NO_x + NMHC (non-methane hydrocarbons), the Division considers that the VOC emissions shall be estimated using the maximum manufacturer's emission factor. The following emission factors will be included in the permit:

Pollutant	Emission Factor	Emission Factor Source
PM	0.15 g/hp-hr	NSPS limit
NO _x	4.77 g/hp-hr	
CO	2.61 g/hp-hr	
PM ₁₀	0.15 g/hp-hr	PM ₁₀ presumed to equal PM. NSPS PM limit.
SO ₂	7.05 x 10 ⁻³ lb/gal	NSPS fuel limit (500 ppm) and a presumed diesel density of 7.05 lb/gal.
VOC	0.22 g/hp-hr	Manufacturer's emission data at ¼ Standby

Note that the emergency generator would normally be exempt from the APEN reporting requirements (and subsequently exempt from construction permit requirements) if it were operated for no more than 100 hours per year except it is subject to NSPS requirements. In addition, if the unit were not subject to NSPS requirements and it operated for more than 100 hours per year but no more than 250 hours per year, an APEN would be required for this unit but it would be exempt from construction permit requirements. The source submitted an APEN on November 26, 2008 based on 100 hours per year of operation. Therefore, the Division will not require that annual emission calculations be conducted unless the unit is operated for more than 100 hours per year.

Typically a construction permit would include annual fuel consumption and emission limitations. However, since this unit is only required to have the construction permit because it is subject to the NSPS, the Division is not including annual fuel consumption

and emissions limits in the permit. In the event that this unit was operated more than 250 hours per year (the level above which a construction permit would be required if this unit were not subject to the NSPS), the permit requires that the source submit an application to include annual fuel consumption and emission limitations.

In the absence of credible evidence to the contrary, compliance with the Reg 1 SO₂ emission limit is presumed whenever diesel fuel meeting the NSPS requirements is used as fuel (based on the 500 ppm sulfur limit, a fuel density of 7.05 lb/gal and a heat content of 137,000 Btu/gal, SO₂ emissions are 0.051 lb/mmBtu). The NSPS does not specify how the permittee is required to demonstrate compliance with the fuel limitations; therefore, the permit will require that the source use vendor data in order to monitor compliance with the fuel limitations. In lieu of vendor data, the permittee may conduct sampling in order to monitor compliance with the fuel limitations. An annual Method 9 observation shall be conducted annually in order to monitor compliance with the opacity limitation.

Section III – Permit Shield

- Revised the permit shield in Section 1 to indicate that the shield for the NSPS Dc requirements apply to the coal-fired boilers only, rather than to the facility.

Section IV – General Condition

- The upset requirements in the Common Provisions Regulation (general condition 3.d) were revised December 15, 2006 (effective March 7, 2007) and the revisions were included in the permit. Note that these provisions are state-only enforceable until approved by EPA into Colorado's state implementation plan (SIP).
- Removed the statement in Condition 3.g (affirmative defense provisions) addressing EPA approval and state-only applicability. The EPA has approved the affirmative defense provisions, with one exception and the exception, which is state-only enforceable is identified in Section I, Condition 1.4.
- Replaced the reference to "upset" in Condition 5 (emergency provisions) and 21 (prompt deviation reporting) with "malfunction".
- General Condition No. 21 (prompt deviation reporting) was revised to include the definition of prompt in 40 CFR Part 71.
- Replaced the phrase "enhanced monitoring" with "compliance assurance monitoring" in General Condition No. 22.d.

Appendices

- The following changes were made to the insignificant activity list in Appendix A:

- The 2,000 gallon gasoline storage tank was removed from the insignificant activity list in Appendix A and included in Section II.3 of the permit. Note that Section II.3 of the permit reflects the correct size for this tank, which is 4,000 gallons.
- Another gasoline powered lawn mower was added to the list (there was 4 now there are 5)
- Corrected the list of emergency generators and included engine size.
- Based on comments on the draft permit and technical review document received on January 22, 2009 via e-mail, the tanks listed under chemical storage tanks (Reg 3, Part C.II.E.3.n) and tanks with through less than 400,000 gal (Reg 3, Part C.II.E.3.fff) were revised.
- Appendix B and C were replaced with latest version.
- Changed the mailing address for EPA in Appendix D.
- The following changes were made to the CAM plan in Appendix G
 - Under the “Rationale for Selection of Indicator Ranges” (Section III.c), corrected the sentence to indicate that for visible emissions an indicator range of 10% opacity or greater was selected. The current permit incorrectly lists the range of less than 10% opacity.
 - In the table, clarified that the baghouse inlet gas temperature is an indicator (current permit just notes says “inlet gas temperature” is an indicator)
 - In the table, under “indicator measurement approach – visible emissions”, added language specifying that in lieu of conducting a Method 22 visible emissions observation, the permittee could conduct a Method 9.
 - Added language to the table under Section III.c – “monitoring frequency” indicating that failure to conduct a visible emission observation in any two week period and failure to record a baghouse inlet gas temperature on any day the coal fired boilers are operated shall be reported as excursions.

Colorado Mental Health Institute at Pueblo - Total HAP Emissions (tons/yr)

	HCl	HF	Mercury	Metals	Hexane	Formaldehyde	Other Organics	Lead	Total
Coal-fired boilers	2.06	1.47	1.20E-03	4.14E-01	6.70E-04	2.40E-03	1.54E-02	6.00E-02	4.03
NG-fired boilers			1.34E-04	2.57E-03	9.28E-01	3.86E-02	3.77E-03		0.97
Total	2.06	1.47	1.33E-03	4.17E-01	9.28E-01	4.10E-02	1.92E-02	6.00E-02	5.00

Opacity Streamlining Grid

Reqmt Source	Normal	Start-up	Shutdown	Malfunction	Fire Building	Cleaning of Fire Boxes	Soot Blowing	Process Modifications	Adjustment/ Cleaning of Control Equipment
Reg 1 Sections II.A.1 & 4	20%	30% with one 6 minute interval in excess of 30% per hour	20%	20 %	30% with one 6 minute interval in excess of 30% per hour	30% with one 6 minute interval in excess of 30% per hour	30% with one 6 minute interval in excess of 30% per hour	30 % with one 6 minute interval in excess of 30% per hour	30% with one 6 minute interval in excess of 30% per hour
Reg 6, Part B, Section II.C.3 - State Only	20%	No standard ¹	No standard ¹	No standard ¹	20%	20%	20%	20%	20%

¹Although the opacity standards are not applicable during start-up, shutdown and malfunction 40 CFR ' 60.7(c) (2) requires the source to report each period of excess emissions that occurs during startups, shutdowns, and malfunctions, the nature of the malfunction and the corrective action taken or preventative measures adopted. Note that for Reg 6, Part B requirements, the NSPS general provisions are adopted by reference and so any opacity exemption provided in the NSPS applies to source subject to Reg 6, Part B.

* Shaded regions are the most stringent **Federal** requirements

** Values in bold are the most stringent **State-only** requirements however **federal** requirements cannot be streamlined out of the permit due to more stringent **state-only** requirements